Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A method of treating a subject with cancer by administration of a macrocyclic metal chelate, said method comprising the steps of:

(a) administering to said subject an antibody comprising an antigen recognition domain that recognizes said macrocyclic metal chelate,

wherein said antibody comprises:

a reactive site within the structure of the antibody that is not present in the wildtype of said antibody, wherein said reactive site is in a position within said antigen recognition domain and

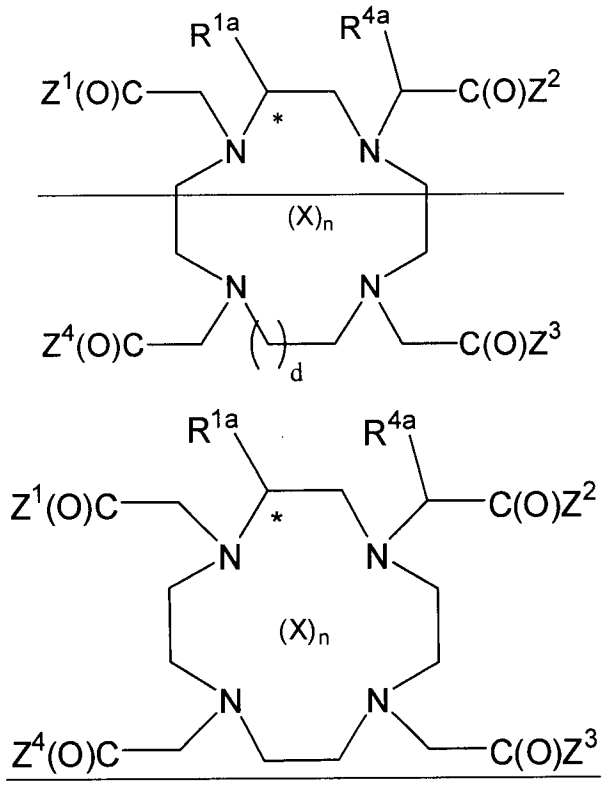
a targeting moiety that binds specifically to a cancer cell by binding with a member selected from a cell surface receptor and cell surface antigen, thereby forming a cell-antibody complex;

wherein said macrocyclic metal chelate is 1,4,7,10-tetraazacyclododecane-N,N',N",N"'-tetraacetic acid (DOTA), and comprises a reactive functional group with a reactivity complementary to said antibody reactive site; and

(b) administering to said subject said macrocyclic metal chelate, thereby forming a covalent bond between said reactive site and said reactive functional group ~~specifically binding said macrocyclic metal chelate to said antibody to form a cell-antibody-metal chelate complex~~.

2. – 5. (Canceled).

6. (Currently amended) The method of claim **1**, wherein said substituted or unsubstituted DOTA has the formula:



wherein

R^{1a} and R^{4a} are members independently selected from H, substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl, substituted or unsubstituted aryl and linker moieties;

X is a member selected from a lanthanide, an actinide, an alkaline earth metal, a group IIIb transition metal, and a metal;

Z^1, Z^2, Z^3 and Z^4 are members independently selected from OR^1 and NR^1R^2 in which

R^1 and R^2 are members independently selected from H, substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl;

n is a member selected from 0 and 1~~; and~~

~~d is a member selected from 1 and 2~~.

7. (Cancelled).

8. (Previously presented) The method of claim **6**, wherein the carbon atom marked * is of S configuration.

9. (Cancelled)

10. (Previously presented) The method of claim **1**, wherein said targeting moiety binds specifically to said cell surface antigen.

11. (Original) The method of claim **1**, wherein the targeting moiety is covalently attached to said antibody.

12. (Currently amended) The method of claim **10**, wherein the targeting moiety is [[an]] a second antibody.

13. (Original) The method of claim **11**, wherein the targeting moiety specifically binds to a protein on a cancer cell.

14. (Original) The method of claim **1**, wherein the subject is a mammal.

15. (Previously presented) The method of claim **14**, wherein the mammal is a human.

16. (Withdrawn) A method of *in vivo* imaging, said method comprising the steps of:

(a) administering to a subject an antibody comprising an antigen recognition domain that recognizes a macrocyclic metal chelate, wherein said antibody comprises a recognition moiety that binds specifically to a cell, thereby forming a cell-antibody complex;

(c) administering to said subject said metal chelate, thereby specifically binding said compound to said antibody to form a cell-antibody-metal chelate complex; and

(d) detecting said cell-antibody-metal chelate complex.

17. (Withdrawn) The method of claim **16**, wherein said metal chelate comprises four nitrogen atoms.

18. (Withdrawn) The method of claim **16**, wherein the step of detecting is by positron emission tomography.

19. (Withdrawn) The method of claim **16**, wherein the step of detecting is by magnetic resonance imaging.

20. (Withdrawn) The method of claim **16**, wherein the step of detecting is by detection of lanthanide luminescence.

21. (Withdrawn) The method of claim **16**, further comprising, between steps (a) and (b), administering a clearing agent to said subject.

22. (Withdrawn) The method of claim **16**, wherein the subject is a mammal.

23. (Withdrawn) The method of claim **22**, wherein the mammal is a human.

24. (Currently amended) The method according to claim **1** wherein said antibody has the structure:

$$(Ab)_{n'}\text{-}L\text{-}T$$

wherein,

n′ is an integer selected from 1 to 10 ;

Ab represents said antibody; ~~an antibody comprising an antigen recognition domain that recognizes a substituted or unsubstituted DOTA;~~

L is a member selected from a chemical bond and a linking group that may contain one or more functional groups; and

T is said targeting moiety.

25. (Canceled).

26. (Currently amended) The method of claim **24**, wherein said targeting moiety is [[an]] a second antibody that binds specifically to a cell surface antigen.

27. (Previously presented) The method according to claim **24** wherein said antibody is administered to said subject as a pharmaceutical composition comprising said antibody and a pharmaceutically acceptable carrier.

28. - 29. (Cancelled).

30. (Previously presented) The method according to claim **1**, wherein said cell is a cancer cell.

31.-32. (Cancelled).

33. (Currently amended) The method according to claim **6**, wherein

said R^{1a} and R^{4a} are H;

said Z^1, Z^2, Z^3 and Z^4 are OH;

~~said d is 1;~~ and said n is 1.

34. (Currently amended) The method according to claim **33**, wherein said targeting moiety is [[an]] a second antibody that binds specifically to a cell surface antigen.

35. (Previously presented) The method according to claim **34**, wherein said targeting moiety is anti-CEA.

36. (Previously presented) The method according to claim **33**, wherein said targeting moiety is anti-CEA.

37. (New) The method according to claim **1**, wherein said antibody has a first sequence having at least 95 percent homology with SEQ ID NO. 1; and wherein said antibody has a second sequence having at least 95 percent homology with SEQ ID NO. 5.

38. (New) The method according to claim **1**, wherein said reactive site comprises sulfur.

39. (New) The method according to claim **1**, wherein said antibody is purified.